

Loweia dorilis, quite fresh and in abundance, *Limenitis sibylla*, in very fair condition, and *Agriades coridon*, just emerging. I noted that the *A. iris* and *L. sibylla* taken on this day were almost perfect compared with the *passé* specimens I had met with during the past week in the Mooswald near Freiburg.

I went on to Schaffhausen on July 17th, some mile and a half from Neuhausen, and spent a short time at the Museum, where there is a small collection of local Lepidoptera in very fair condition. From here I was directed to the "scharrensumpf," a large reservoir, with the remains of a marsh around it, about two miles from the museum. There I took *Hirsutina damon*, but on some better ground behind and above a few farm houses to the right of the "scharrensumpf," away from Schaffhausen, I took *Papilio machaon*, *Colias hyale*, *H. damon*, *Agriades coridon*, and saw a fine specimen of *A. iris* and several more *P. machaon*.

July 18th was a dull, wet morning, but the sun got out at mid-day, and I crossed the Rhine and collected on the south bank of the river. Here I caught a Lycaenid which I did not recognise at first, but subsequently concluded it was a fine specimen of *Erebes argiades*. A fine *A. iris* was seen but not captured, and *L. dorilis* was obtained in plenty. My return was by way of Schaffhausen, crossing the Rhine again by the old town bridge. The following day was a blank, for it rained the whole time.

The morning of July 20th was fine, and, among other things, I found on a tree-trunk a male and a female *Psilura monacha*. The female obligingly laid me a large batch of ova, which I am keeping for next spring. As rain came on again at mid-day I had to give up and return to the hotel. In the afternoon I left Neuhausen for Strassburg, which I reached about eight o'clock. It was interesting to see the remains of the many forts near Strassburg, and reminded one of the war of 1870. A walk later on through the town was very interesting, though unfortunately for me the cathedral was not open at this hour, and I had to content myself with admiring the fine exterior. After spending another night in the train I reached Brussels on the morning of July 21st. The day was spent in seeing the attractions of the city, in attending the grand services in the cathedral, and enjoying the festivities of the National Fêtes of Belgium. I did no more collecting, although I had intended, had I had more time, to visit the Forêt des Soignies and the Field of Waterloo. The same evening I left Brussels, reaching London early the next day, after a very pleasant and more varied holiday than usual.

In conclusion I must express my hearty thanks to Mr. B. Warren for maps and localities for the Freiburg district and the excellent notes on Hinterzarten which have appeared in the pages of this magazine by the Rev. G. Wheeler.

Collecting Orthoptera in the Caucasus and Transcaucasus.

(With two plates.)

MALCOLM BURR, D.Sc., F.E.S.

[Species marked * have not apparently been previously recorded from the Caucasus.]

The mighty range of the Caucasus, stretching its huge crest for 950 miles, from the Sea of Azov to the Caspian, rearing its snow-clad

peaks half as high again as Mt. Blanc, always appeals irresistibly to the imagination. The amazing diversity of peoples and languages, and of physical conditions, suggests possibilities of an infinite variety of faunistic problems.

Fired by a desire to get a glimpse of this wonderful land, if only to pass over the Russian steppes on the north, through the heights themselves, to catch sight of the lofty cone of Kazbek, of the mighty two-headed Elbruz, to visit the old Georgian capital of Tiflis, so often besieged and razed by Persian and Tartar, by Hun and by Turk, to explore the burning plains of Aderbadjian, and to view the luxuriant vegetation of Batum, attracted by thought of mystery, the *omne ignotum pro magnifico*, I did not hesitate to accept a cordial invitation to visit some Russian entomological friends in their own home, and in their company explore some of the marvels which Nature has so lavishly bestowed on this favoured region.

Circumstances delayed my departure, but the date of my return was of necessity fixed in advance, so my trip, though long in distance, was of the briefest in time. It was not until the last day of August that I reached Vladikavkaz, after six days in the train from Dover.

Vladikavkaz, as its name implies*, is the key to the Caucasus, and during the years of bitter warfare between the Russians and the mountaineers it was a most important military post. It is a spacious town, of some 80,000 inhabitants, laid out in wide rectangular streets, bordered mostly with one-storied houses, which gives it that unfinished look which is characteristic of Russian provincial towns. It is situated about 2,200ft. above the sea, on the plains of the Tver and Kuban provinces, the granary of Europe, at the foot of the great range of the Caucasus, at the opening of the Darial† gorge, which is the chief pass through to the valley of the Kura, and to Tiflis on the south. This gorge is, in fact, the gateway between Europe and Asia.

I had a few hours to spare in the afternoon and evening, so took a fly as far as Balta, at an elevation of 2,754 feet, the first *stantsia*, or military post, on the road to Tiflis, at the entrance to the gorge. High mountains rise abruptly out of the plain, and the Tver bustles down busily from the watershed, fed by streams from the glaciers of Kazbek,‡ the snowy peak of which could occasionally be seen, reddening with the evening glow. In the scrub beside the road, I found our familiar Central European *Olynthoscelis griseo-aptera* De Geer (= *Thamnotrizon cinereus* L.), was chirping merrily in the thickets; *Leptophyes punctatissima** Bosc., fell into my net as also the Alpine *Stauroderus apricarius*, L. and *Chorthippus parallelus*, Zett. *Stauroderus bicolor*, Charp., was abundant and for a minute I thought myself in East Kent. I also took *St. cognatus*, Fieb., an interesting South Russian species that I had not previously seen alive.

* Most places in the Caucasus have Tartar names, that are generally used by the natives, as opposed to the official Russian names. Thus, Vladikavkaz is called *Kap kai*, "The head of the Pass," and Elbruz is *Ming Tau*, "Thousand heads" and Elizavtpol is *Gandja*.

† This name is derived from two Tartar words, *dar* or *dere*, a gorge and *yul*, a road. It has no real connection with the name of the Princess Daria of Tamara, the heroine of Lermontoff's "Demon." Derbend is the corresponding Persian form.

‡ Kazbek is a personification. *Kaz* a proper name, and *bek* a Tartar title, given to landowners and persons of good positions.

It rapidly grew dark and my driver, a worthy Russian, became nervous and begged me to hurry out of the gorge, for he feared the Ingush. They are dark and dangerous men, he said, and master thieves. Probably he exaggerated greatly, but we had seen a dozen or so, in their black *cherkess* and sharp *kinjal*, and high fur-hat, riding their little hill-horses through the foam of the Terek, and I had been particularly warned by a Russian friend to carry a revolver, and leave my money at the hotel.

So we drew up at the Second Redant, a wayside inn, kept by a round-faced, black-eyed Georgian, who regaled me with most tasty trout from the Terek, and the inevitable *shishlik*, little pieces of meat roasted on a skewer, preceded by a glass of vodka, and washed down with a bottle of good Kakhetin wine. A cigarette over the coffee, a pipe, and home to Vladikavkaz.

The next morning broke misty and damp, and so robbed us of the unrivalled view of the mountain screen which towers over the city. Pressed for time, I decided to take the motor omnibus to Tiflis and reach there the same night, satisfying myself with a fleeting glimpse of the mountains. The more leisured traveller would do well to take three to four days and drive or ride, and even stop a day or two at some of the more beautiful spots. The car was an open omnibus, carrying eighteen passengers, none of which had been to Tiflis before. My neighbour was a young officer from Warsaw, spending a brief leave on a dash through the Caucasus to Baku, and home *via* Batum and Odessa. All were genial and all Russians.

Soon we were in the gorge, where the sun dispelled the mists, and we whirled at breakneck speed, always mounting, till at Lars we entered the romantic gorge of Darial itself, eternally famous from the poems of Lermontoff, every stone washed with the blood of Russian soldiers. The pass is narrow, and naked rocks rise sheer on each side, while the Terek bubbles and boils in the middle. The road, cut through the solid rock, is good, unfortunately, for we passed all too quickly. We rushed past a conical hillock in the gorge, with lofty cliffs on each side; on the top of the hill were perched the ruins of the castle of Tamara, a semi-fabulous Princess, who is reputed to have once reigned here with a rod of iron, in her grim and rocky fastness. The monotony of the gloomy life of this Amazon queen was relieved by frenzied outbursts of passionate and licentious orgies. This erotic Caucasian Semiramis must not be confused with the Georgian empress of the same name, who flourished at Tiflis in the twelfth and thirteenth centuries.

We were now in the heart of the Mountain of Languages. In those crags and forests, haunted by wolf and bear, by ibex and aurochs, by boar and by leopard, dwell innumerable tribes and races, speaking an astonishing diversity of tongues. I am credibly informed that it is no exaggeration to say that over one hundred distinct languages and dialects are spoken in the Caucasus. The difficulty of communication has isolated families, and almost every village has developed its own dialect. There appear to be three main autochthonous groups: the Georgian, in the centre and west, the Circassian, in the extreme west, and the Lesghian in Daghestan, in the east. The Georgians, whom some suppose to be the descendants of the ancient Medes, are a cultivated, orthodox people, who were christianised

long before the Russians, and their early writers throw valuable light on the early history of their part of the world. They voluntarily placed themselves under the protection of Russia about a century ago. They use a peculiar alphabet, whose elegant rounded letters somewhat resemble Burmese. Their language is, I believe, of the Iranian group. Akin to the Georgian are numbers of dialects, the chief of which are the Imeritian and Mingrelian, and Osset. The Circassians have mostly left Russian territory and migrated to Turkey, where they often become Bashi-Bazuks and have earned an unenviable reputation for ferocity. Their language is little known and is said to have affinities with the Isolating family. Other strange tribes in the Western Caucasus are the Abkhaz, who have sounds that cannot be represented by any combination of letters in any European alphabet. Then there are the Svan or Svanetes, dwelling round and at Elbruz, who live in five-storied circular towers. Two stories are underground and three in the air, and the family moves from floor to floor according to the season and the temperature. The wild mountains of Daghestan are inhabited by the Lesghian group, which at least one author has attempted to connect with the Albanians, to my mind a fatuous suggestion. Subdivisions of this group are the savage Chechents, the Tush, Ud, Kazi-Kümüük, Avar, Hirkan and many others. The Lesghian and Circassian groups are Mahommedan, as are the Nogai, Kalmyck, Azerbaidjan and other Tartars, each with their own dialect, who are to be met with in the steppes north and south of the main range. On the shores of the Black Sea there are Turks, and in and around Tiflis there are Armenians, Persians and sometimes Kurds, a good sprinkling of Jews, and above the heads of all, the Russian officials. Truly, an amazing assemblage of peoples and tongues.

All too soon we reached the *stantsia* of Kazbek, where we halted for half an hour to refresh ourselves and the driver, and bask in the splendour of the scenery. Far across an opening in the hills, where the picturesque, but probably exceedingly dirty *aoul*, or mountaineer's hamlet, Gerget, nestles on the slope beyond, towering up to 16,546ft., high above all others, stands the majestic cone of Kazbek itself, with the splendid glacier of Devdorak. But hardly had we grasped the full beauty of the scene, when we were ordered aboard and whirled up and up to Kobi, where the valley is broad and flat, and the Terek shrunk to a tiny rivulet. Beyond Kobi the road is constantly threatened by avalanches, so we drive through long tunnels, solidly built, over which the tumbling masses of rocks and stones slide, and leave the road intact. Soon we reach the cross that marks the highest point of the pass, 7,500ft., but the scenery is far tamer than at the *stantsia* Kazbek, and in the gorge below. At this point we cross the watershed, and bid good-bye to the Terek. We have now left Europe, and are in Asia. At the first *stantsia* in the descent, that is, Gudaur, by a great stroke of luck the car broke down for an hour, which gave me the longest opportunity of collecting in these heights.

The slopes here are grassy, and I hoped to find some interesting alpine forms, especially of *Gomphocer*, but the only grasshopper that I could discover was the alpine *Stenroderus apricarius*, L. A little lower are some clumps of shrubs and thickets and here I saw a female *Orphanina*, but she was too nimble for me. My ear detected a familiar

chirp, which I resolutely set to work to stalk down. I was convinced it was an *Olynthoscelis*, and soon my patience was rewarded by the capture of a fine male. It was not *Olynthoscelis*, though at first I took it to be a local, and probably new species, but a *Psorodonotus*, *Ps. specularis*, F. de W. This is an interesting genus, resembling *Olynthoscelis* in appearance, with a very long pronotum, but structurally more nearly related to *Decticus*. Only three species are known, *P. fieberi*, of the Western Balkan, which I have taken on the Durmitor in Montenegro, *P. specularis* in the Caucasus and Asia Minor, and *P. inflatus*, Üv., a species recently discovered by Uvaroff, also in the Caucasus. My specimens approach the latter in the smaller size, and unarmed femora, but in the structure of the pronotum and genital parts it is indistinguishable from the larger forms of *P. specularis* from Bakuriany, on the south side of the valley of the Kura.

Our driver completed his repairs all too quickly and soon we were buzzing away down the valley of the Aragva, a torrent that has cut a fine gorge on the southern slope of the range. The scenery is very grand and rugged for many miles, and the road is the mere ledge on the precipitous flanks of the mountains. We whirled round appalling corners, with a miserable parapet, at terrific speed, and to ease our nerves the driver pointed out a yawning chasm where but a week or two before a car had gone over bodily, and fallen a thousand feet or more. I clenched my teeth and gripped my seat and trusted to Providence. Regret at reaching the milder scenery of the lower Aragva was tempered by relief at the relative safety of the drive. About 2.30 we stopped for lunch at Passanaur, 3,621ft., a picturesque village in the gorge. The menu consisted of vodka, bortch, fish, shishlik and kakhetin wine and good coffee. As I seized my net for a moment's collecting, we were ordered on board and hustled off again. The scenery is fine, but not grand; mountains have degenerated into hills, and are thickly wooded. At frequent intervals we ford torrents, up to the axles of the car, and pass caravans of savage gypsies, some of whom threw stones and curses at the car. Quickly through the village of Ananaur, 2,325ft., we entered a broad undulating plain, highly cultivated, but now burnt brown. A minute's halt at Dushet, 2,915ft., where I scorched my dusty throat with a glass of boiling tea, and took *Stauroderus bicolor*, Charp., and *Oedipoda caerulea*, L., and off again.

The brown fields are dull and monotonous, but on the telegraph wires are perched that most exquisite creature the bee-eater, *Merops apiaster*; in beauty of colouring, elegance of build, and grace of flight, I know no bird that can rival it; they looked like living jewels flashing in the sun, as they dived off the wires, hawked an insect, and gently landed again upon their perch.

A race down a long straight road brought us to the Kura, that cuts a deep and wide valley down to the Caspian. We crossed it at the village of Mtskhét, 1,525 ft., with a quaint old Georgian church built by the Georgian Emperor, Alexander (1413-1442), to replace the older one destroyed by Tamerlane, and at last, at 8 p.m., tired, cramped, dusty, hungry, and thirsty, we reached Tiflis.*

At the comfortable Hotel London it was nice to be greeted by the

* "Tiflis" is probably a Tartar corruption of the Georgian name of the Town "Dibilissi."

familiar face of Philip Adamovich Zaitseff, former editor of the *Révue russe d'Entomologie*, whose acquaintance I had made at the Jubilee of the Russian Entomological Society, and renewed at the Congress at Brussels. He was accompanied by Dr. R. Schmidt, the erudite Deputy Director of the Caucasus Museum, a genial soul, whose delight it was to help the traveller and introduce him to the wonders of Tiflis.

(To be continued.)

Libythea celtis. Eggs and Oviposition (*With two plates*).

By T. A. CHAPMAN, M.D., F.E.S.,

Libythea celtis is nowhere very common on the Riviera, though I have seen and taken it in a number of places. Celtis trees are not abundant, and are usually of large size, such as some in the market place of Mouans Sartoux, near Cannes. They are not, therefore, very accessible, and so it resulted that I never succeeded in obtaining eggs, and was not less fortunate than various other collectors whose ambitions in this matter were much like my own. In 1909, however, I visited Amelie-les-Bains. *Celtis australis* is not very abundant here, but what there are are often young trees and shrubby growth, the region is also one in which celtis is actually grown commercially in various places. Though *L. celtis* was in no great numbers one could always count on meeting with them. I took the first specimen on April 7th, just after my arrival, and others afterwards. The trees were then showing traces of flowers and of leaves about a quarter of an inch long.

I kept some females of *L. celtis* on some celtis twigs, but no eggs were laid until a fresh spray of celtis, given them on the 16th, afforded a number of eggs on the following day. Further experiments and a close enquiry into the facts seemed to explain why eggs were now laid and none previously.

I may note by the way that in breaking into leaf in the spring *Celtis australis* displays very markedly a peculiarity that is not uncommon in other plants, but rarely so pronounced. A celtis tree may often be seen in April in which some branches seem well in leaf, whilst others are still bare as in winter, and it is found that the green branches are those that bear flowers, the bare ones are not going to do so. The peculiarity is of course largely due to this appearance of flowers all over certain branches with none on others. The young shoots bearing flowers may be several inches long before the others have appreciably moved. *L. celtis* will not lay until there is some actual spring growth, and even then it exercises what are obviously very wise precautions.

My notes say that on April 18th the flowering sprays are two to four inches long, with four or five leaves of an inch to a inch and a half long, whilst the non-flowering buds are but half an inch long, showing a little green but no leaves. The trees have a curious appearance, often a whole bush or tree appears covered with leaves, whilst another looks quite bare and wintry; a considerable proportion have certain sprays and branches well in leaf, whilst the rest of the tree looks dead (by comparison).

The flowering buds throw out male flowers (catkins?) close to their base, the central shoot carrying female flowers in the axils of the first four or five or more leaves. Already (18th) the berries are nearly as large as a small grain of wheat, and the faded male flowers, with